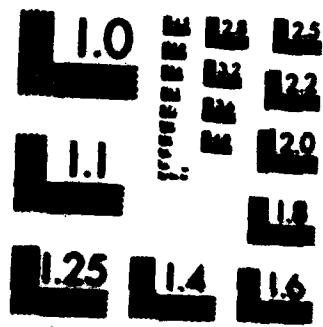


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A STUDY OF THE INTEGRATION OF MILITARY  
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OCCUPATIONAL HEALTH PROGRAM

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Submitted to the Faculty of  
Baylor University  
In Partial Fulfillment of the  
Requirements for the Degree  
of  
Master of Hospital Administration

By

Major James E. Voss

May 1980

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## CHAPTER I

### INTRODUCTION

#### Development of the Problem

A historical perspective of the present requirement for an occupational health program within the military forces begins with the founding of the thirteen original colonies. As the colonies gained their independence from England, the Industrial Revolution had started making inroads on the basically agrarian economy and had further set the stage for the increasing social awareness of the American people. Thus in 1797, the first workers' compensation program was enacted by Congress to provide for naval personnel wounded or disabled in the line of duty.

Following closely on the heels of this program, the Marine Hospital Service was created in 1798 to provide care for the vital merchant marine service. By 1835, the first monograph correlating occupations with certain diseases appeared. By the next year, Massachusetts had passed the first Child Labor Law. As the nation moved slowly toward the twentieth century, greater demands by the workers for increased safety and health programs were seen. By 1886, Samuel Gompers had established the American Federation of Labor and had begun "lobbying" for the eight hour day and increasing emphasis on health and safety programs within the work place.

The turn of the century heralded even greater social awareness and increased pressure on the government to legislate, and thus legitimize, the workers' demands for better conditions. Regardless of this pressure, the transition was a slow one. The 1911 New York Workers' Compensation Act was declared unconstitutional by the New York State Courts on the same day that a New York factory, previously notified of its lack of fire escapes, burned with a resultant loss of some 146 lives.<sup>1</sup> The indignation and furor created by this and similar incidents added additional pressures until, by 1948, all states had passed some form of workers' compensation.

In 1914, the Office of Industrial Hygiene and Sanitation was formed, as was the National Safety Council. Legislation began to reflect the desires of the majority of American workers and provide the framework which implemented this growing sense of social awareness. By 1936, the Public Contracts Law (Walsh-Healey) was passed to help protect employees. Unfortunately, this and other state "laws were inadequately enforced by too few inspectors."<sup>2</sup> In 1937, the Office of Dermatoses to become the Division of Industrial Hygiene of the National Institute of Health and would eventually evolve into the National Institute of Occupational Safety and Health (NIOSH). Further legislation was passed which was applicable to specific groups, but no comprehensive law applying to all workers in all occupations was seen until 1968. "After an abortive attempt to pass the O'Hara Bill

in 1968, the Occupational Safety and Health Act of 1970 was successfully introduced by Senator Harrison A. Williams, Jr. (D-N.J.) and Congressman William A. Steiger (R-Wisc.), being signed into law December 29, 1970, to become effective April 28, 1971.<sup>3</sup>

In response then, to perceived needs to improve health and safety conditions of workers, criticisms of lax enforcement of previous laws, lobbying by union groups and the realization that there was a need for one comprehensive law rather than a myriad of occupational specific laws, the Occupational and Health Act (OSHA) of 1970 was enacted as law with the express purpose

To assure safe and healthful working conditions for working men and women; by authorizing enforcement of the standards developed under the Act; by assisting and encouraging states in their efforts to assure safe and healthful working conditions; by providing for research, information, education and training in the field of occupational safety and health; and for other purposes.<sup>4</sup>

It was not until September 1974 that the military forces were specifically brought under the umbrella of OSHA when Executive Order 11807 was issued instructing Federal Agencies to implement OSHA. In addition, "part 1960 of Title 29 of the Code of Federal Regulations requires that all Federal employees, including military, be covered under standards consistent with OSHA. The requirement to conform to the Federal regulations is reinforced in DOD Instruction 6055.1."<sup>5</sup> Subsequently, Army Regulation (AR) 40-5 was published on 25 September 1974 and provided specific guidance for an occupational health program which applied to military and civilians.

It should be noted that, with all the specific requirements identified in various regulations, executive orders and public laws, little has been done to formally integrate the military member into the occupational health program. Health Services Command (HSC) has issued supplemental guidance in the form of HSC Pamphlet 40-2, but there is not a cohesive program which identifies the military member upon initial entry on active duty and provides a career length record of his or her exposure to occupational and safety hazards and a record of testing accomplished to assess the impact of these hazards on the individual. In general, the occupational health program "involves the prevention, recognition and treatment of disabilities due to the occupation and makes use of such fields as rehabilitation, industrial hygiene/toxicology, environmental sanitation and human relations."<sup>6</sup>

When one realizes that the successful accomplishment of any mission is ultimately determined by the effective and efficient use of manpower talents and resources, especially in this era of tight budget conditions, the need for a program to insure maximum efficiency of those manpower resources is underscored. It is then almost inconceivable that no formal, comprehensive program has, to date, been implemented on Army posts world-wide. Osler's comments in 1937 are even most appropriate today when taken in light of the Army's lack of a cohesive occupational health program:

It is the tragedy of today that man is so indifferent to the life of man. Yes, we surround the babe unborn with premonitory

protection, deal wisely and gently with infancy and childhood, and then hurl the product of a reasonably healthy youth into a maelstrom of blind chances, of dust, fumes and fatigue, which wear down the stoutest body and cripple the most willing to work.

The occupational health program at Fort Gordon specifically fits the general description above of the Army's program: basically a non-existent program granted status only by inclusion in a Fort Gordon Regulation. As a contrast, the occupational health program for civilians is comprehensive and lacks only one or two areas from being in total compliance with statutory and regulatory requirements. These areas of non-compliance have been identified and are in the process of being corrected. In all fairness, the military's inclusion or lack of inclusion in a comprehensive program has been identified by the current Chief of the Preventive Medicine Activity and he has commenced planning for an integrated effort. In effect then, this problem solving paper is an aid in achieving a comprehensive and integrative military occupational health program which could serve as a model for other army installations.

The problem is to define and develop an effective program for implementation of an occupational health program for military personnel stationed at Fort Gordon.

In defining and developing an effective program, there are four limiting factors which impact on possible options: personnel, to include staff and the military population of Fort Gordon; lack of a centralized program at Department of the Army (DA) level;

development of appropriate job classifications and medical testing required; and an inability to change regulatory requirements.

Limitations in the area of personnel can be sub-classified into three distinct areas; occupational health personnel, supporting staff and basic and one station unit training trainees. Regardless of how comprehensive a program of occupational health is developed, there will be a certain increase in the number of personnel required to initiate and then maintain the program. Although personnel can work beyond normal quantitative measures of output for a short period, the overall program cannot be continued without adequate professional and administrative support within the Preventive Medicine Activity. Current manpower survey philosophy has changed such that recognized requirements are approved more realistically than in the past; however, the real crux of the matter is to produce the allocations to accompany the requirements. The latter may be difficult to impossible depending on the overall needs of the medical center.

Secondly, integration of the military into an occupational health program will require increased medical professional and para-professional staff time for physicals, laboratory tests, vision tests, audiometry, etc. Those activities which are already working to capacity without the additional projected work load could significantly decrease the effectiveness of the program or actually delete a functional portion of the program due to this lack of capacity for increase. The comments regarding the manpower survey are just as applicable here as above.

Thirdly, the fact that Fort Gordon conducts basic training and one station unit training (OSUT) provides its own problems. While not unique to Fort Gordon, the rapid turnover of these personnel pose an interesting dilemma in establishing records, conducting testing and continuity of records while not overtly interfering with the various training cycles. The time constraints are further complicated by the volume of trainees on an annual basis.

The second category of limitations was that of a lack of a centralized program at DA level. Granted that the apparatus is there, but no single, well defined program exists which would allow for continuity of the program from post to post. An individual leaving Fort Gordon with documentation from the comprehensive occupational program here may find that the new station of assignment has either no formal program or one that materially differs from Fort Gordon's. This problem is explicitly stated in HSC Pamphlet 40-2: "in conjunction with the type and size of the installation(s) supported, each program will require tailoring to support local priorities."<sup>8</sup>

The third category of limitations involves defining the job hazards by military occupational specialty (MOS) or specialty skill identifier (SSI) and the appropriate testing required to monitor the effects of hazard exposure. This data, extracted from the U. S. Army Environmental Hygiene Agency (USAEHA) Guide Book, must be viewed as indications of tests required. Specific hazards for the individual must be developed through a hazard survey of the 1300 buildings on post and correlated to MOS/SSI data. It is estimated that hazard

inventories would require one year to develop.

The fourth category which limits options available is regulatory and statutory requirements. While resource constraints might dictate prioritizing various programs, the very act of omitting lower priority aspects of the occupational health program is to condone non-compliance or subvert such requirements. This is not a viable alternative to be explored since acknowledgement of the ability to selectively non-comply with these regulatory requirements implies the ability to selectively non-comply with any or all regulatory requirements. The results of this approach is anarchy and cannot be accepted.

The only ascertainable obstacles to optimum research of the problem is a lack of certain specific data regarding basic trainees on a monthly basis at Fort Gordon in 1977. Since generalized figures on the average number of trainees per year are available, this should not cause any anticipated hardship. With the advent of the uniform chart of accounts (UCA), specific cost data and manpower data should be readily available to determine resource requirements.

The other limiting factors which could bear on the problem include both funding and computer support. The Comptroller has voiced the opinion that costs associated with increased work load will most likely be funded by HSC. Thus, there is no apparent problem in increasing supply costs. In the area of computer support, the new medical center computer complex is scheduled to be installed by October 1980 and all indications are that it will be installed by that date.

The problem that surfaces is the priority assigned by the Automation Council in developing programs to support an integrated military and civilian program. Assuming a high enough priority is established by the council, there should be little or no negative implications for implementation of appropriate support for the program consistent with establishment of the appropriate data base.

#### Review of the Literature

A review of literature available provided information on one proposal for implementation of an occupational health program at Fort Carson.<sup>9</sup> This proposal outlined a general approach to the resource impacts associated with the implementation of the program and provided selected cross referenced data between civilian occupational codes and military MOS/SSI codes. No indication was given to specific implementation of the program by occupational health objectives.

Another study of responses by selected large corporations spanning a large variety of manufacturing concerns indicated the type of occupational health programs these organizations had implemented, the type of exams/tests conducted and future areas for inclusion in a computerized program.<sup>10</sup> The committee findings were indicative that the majority of large corporations conducted some occupational health program tailored to their needs. The report was not specific enough to identify all the variables, however the responses on the type of programs are indicated in Table 1. The types of tests and the personnel receiving them varied over a wide range, indicating, perhaps, that some

selective criteria for the tests was established. The second half of the report indicated both the types of data maintained in a computer and that which was expected to be maintained within two years. Basic trends in these large corporations were for more interactive utilization of computers for a variety of occupational health programs from routine appointments for physicals to morbidity studies.

TABLE 1

OCCUPATIONAL HEALTH PROGRAMS IMPLEMENTED  
BY SELECTED CORPORATIONS

	Number	%
Preplacement physicals		
Yes, on all employees	132	81.0
Yes, on some employees	29	17.8
No	2	1.2
Health maintenance examinations		
Yes, on all employees	33	20.2
Yes, on some employees	124	76.1
No	6	3.7
Return to work evaluations		
Yes, on all employees	77	47.2
Yes, on some employees	85	52.1
No	1	0.6
Environmental hazard/toxicity evaluations		
Yes	149	91.4
No	14	8.6
Environmental Health Control Programs		
Yes	140	88.4
No	22	11.6

SOURCE: J. Dexter Forbes, et al., "Utilization of Medical Information Systems in American Occupational Medicine, Journal of Occupational Medicine 19 (December 1977): 822, tables 12-15, 18.

Other literature reviewed discussed general guides in developing programs and identified key elements for inclusion within these programs. The data discovered in journal articles was not as specific as that identified from Chapter 4, AR 40-5, HSC Pamphlet 40-2 and Fort Gordon Regulation 40-7.

Based, then, on literature review it would appear that other organizations have, for the most part, implemented appropriate programs in occupational health and safety. Only the U.S. Army seems to have taken the alternative of non-compliance.

#### Problem Solving Methodology

In order to define and develop the occupational health program, the objectives of the total program must be identified. The objectives for the military program will be those identified in AR 40-5 and HSC Pamphlet 40-2.

Once the objectives of the program are identified, the eligible military population must be defined. This includes the total number of soldiers stationed at Fort Gordon, the number of permanent party/cadre, the total number of trainees over a period of one year, the male/female ratio in each of the categories and the MOS/SSI picture at Fort Gordon to include numbers and sexes. Concurrently, the status of the basic trainee and the OSUT trainees must be established to determine whether they will be considered as eligibles or not. If eligible, what elements of the program will be applicable to them.

Once this has been completed, a Fort Gordon specific MOS/SSI

match/correlation to existing testing parameters in the USAEHA Guide must be accomplished. This should be done in conjunction with surveys of specific sites for hazard inventory purposes.

With a correlation available which will enable the specific tests and examinations to be determined for each category of personnel by job description, those tests presently performed during Armed Forces Entrance Examination Stations (AFEES) physicals and routine scheduled physicals can be determined and the total resource impact determined by cancelling the second against the first. The result will be the additional tests and examinations required to be performed.

Once these have been identified, costs associated with each test, examination or immunization in terms of dollars and manpower can be determined for each supporting activity. A review of the recent manpower survey documents should also reveal whether or not the increased work load will be able to be accomplished or to what level it could be accomplished without increased manpower resources. The administrative and professional impact on the Preventive Medicine Activity and the medical center can then also be determined.

With the specific requirements to implement the system identified, the responsibilities of all personnel/activities in implementing an effective program must be defined, to include some form of checks and balances to avoid the lost-in-distribution syndrome frequently encountered.

The next step is to develop and implement a plan which will

integrate the above data into an efficient and comprehensive system. This will undoubtedly require the initial prioritizing of programs and a methodology for maintaining a current data base from which the plan, once totally implemented, can be administered in the most effective manner.

There is little doubt that, regardless of the plan proposed, the magnitude of the integration of the military member is such that a fully functional system of complete occupational and safety programs cannot be implemented overnight. This proposal, as such, will provide a framework around which such a program can be built, over time, and thus provide the military member the same benefits presently enjoyed by his civilian counterpart in both the federal service and the civilian sector.

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#### Footnotes

<sup>1</sup>Jean S. Felton, "200 Years of Occupational Medicine in the U.S.," Journal of Occupational Medicine 18 (December 1975): 811.

<sup>2</sup>William F. Glueck, Personnel: A Diagnostic Approach, (Dallas: Business Publications, Incorporated, 1974): p. 514.

<sup>3</sup>Felton, p. 815.

<sup>4</sup>U.S. Department of Labor, Occupational Safety and Health, Vol. I: General Industry Standards and Interpretations, (OSHA 2077, October 1972): p. v.

<sup>5</sup>Health Services Command Pamphlet 40-2, Medical Services: Occupational Health Program, (21 July 1978): 1.

<sup>6</sup>U.S. Army Signal Center and Fort Gordon Regulation 40-7, Medical Services: Occupational Health Program (12 February 1980): 1.

<sup>7</sup> W. Osler, quoted by J. J. Bloomfield and R. R. Sayers in "The Need for Industrial Hygiene Courses in Public Health Curricula," Public Health Report 52 (1937): 799.

<sup>8</sup> Health Services Command Pamphlet 40-2, p. 1.

<sup>9</sup> Sandra L. Hamper, "Providing Occupational Health Programs to Military Personnel," Third Quarterly Functional Management Project, U.S. Army-Baylor University Program in Health Care Administration (31 March 1978).

<sup>10</sup> J. Dexter Forbes, et al., "Utilization of Medical Information Systems In American Occupational Medicine," Journal of Occupational Medicine 19 (December 1977): 819-30.

## CHAPTER II

### DISCUSSION

Two basic criteria dictate that an occupational health program be initiated and maintained for the military force: logic and the mission of the Armed Forces. Logic would indicate that it is less expensive to prevent an injury or a disease than it is to treat it and suffer the concurrent loss of a trained individual for the period of treatment, hospitalization or incapacitation. The Army mission, whether viewed as a deterrent to attack or a defense from an attack, requires the maximum availability of its manpower resources. This is especially true in a time when the force structure and the total manpower ceiling continue to shrink. In current philosophy, combat readiness is defined in the number of tanks deployable or crew served weapons available, and this is a function of available manpower.

The Army Medical Department (AMEDD) mission is to conserve the fighting strength. Although the commander does have overall responsibility for the health and sanitation of his command, the recommendations and implementation of a program rest squarely with the AMEDD. Additionally, to reinforce the above criteria, OSHA and Executive Order 11807 require implementation of an occupational health program.

Objectives of the Program

The objectives of the Army Occupational Health Program at Fort Gordon are:

- a. Insure all eligible personnel are physically, mentally and psychologically suited to their work at the time of assignment, and that physical and mental health are maintained during service or employment.
- b. Protect employees against adverse effects of health and safety hazards in the work environment.
- c. Insure appropriate medical care and rehabilitation of the occupationally ill and injured.
- d. Reduce economic losses caused by physical deficiency, sickness and injury of military and civilian employees.<sup>1</sup>

The responsibilities for the successful implementation of this program rest with the Fort Gordon Commander to insure that all units and activities comply with all aspects of the program and the Director of Health Services to insure that the medical aspects of the program are accomplished in a timely manner. The Chief, Preventive Medicine Activity acts as the executive agent of the Director of Health Services and has the specific responsibility of the effective implementation and functioning of the medical aspects of the occupational health program.

The Preventive Measures of the Program

The overall occupational health program outlined in Army Regulation 40-5 is defined by the specific preventive measures which must be taken to both promote health and minimize illness arising from the relationship of the individual to the job. These specific measures are applicable to both the military and civilian employees at Fort Gordon. The current civilian program includes all these measures with

the exception of sickness absence control and the consistent use of preplacement physicals.

The present task is to identify the elements of the existing program and the degree to which the soldier has been included in that element. It should be noted that certain elements of the program are so comprehensive and broad in scope that implementation of the measure itself provides coverage to all personnel at Fort Gordon and extends, in effect, beyond the realm of occupation related illness or injury.

The occupational vision program is oriented toward the preservation of eye sight and includes assessment of eye hazards in the work environment, surveys on illumination levels, assessment of individual visual acuity, monitoring safety eyewear and provision of such eyewear for authorized personnel, periodic examinations of personnel working with microwaves and lasers, and provision of first aid and immediate care of eye occupational injuries or illnesses.<sup>2</sup> The soldier is protected by this measure in that visual acuity is periodically checked during routine physical examinations and appropriate eyeglasses are provided based on both visual and safety requirements. Hazard inventories in areas jointly worked by military and civilians provide "add-on" protection for the military member, however not all work areas manned totally by the military member have been surveyed and a requirement exists to complete this. First aid, immediate care and continuing care for eye injury or disease is provided through the professional staff at the medical treatment facility. Currently, not all military personnel who work with ultraviolet, infrared or intense visible light,

microwave radiation sources and lasers are identified in the program, provided preplacement base line ophthalmoscopic examinations and periodic (yearly) eye evaluations.

A review of the Signal Center's projected fiscal year 1981 training of personnel potentially exposed to microwave radiation indicates a need for some 818 preplacement eye evaluations. An additional 220 personnel have been identified as occupationally exposed to microwave and other radiation sources requiring a yearly eye evaluation. While the ophthalmology and optometry personnel were aware of the requirement for these preplacement and periodic eye evaluations, they were unaware of the magnitude of the requirement.

The hearing conservation program is oriented towards the identification of hazardous noise levels (steady levels in excess of 85 decibels and impulsive noise in excess of 140 decibels) and the prevention of noise induced hearing loss. The implementation of this program revolves around surveys of work sites to determine sound levels, wearing of hearing protective devices in work areas with identified noise hazards, and health education and periodic audiograms for personnel working in these identified areas.<sup>3</sup>

Discussions with the medical center audiologist indicated that an aggressive program of hearing conservation was being conducted at Fort Gordon and that the program was continually expanding as new areas were surveyed, noise hazards identified and personnel exposed to those noise hazards concurrently identified. Of the 2110 military personnel identified as requiring yearly audiograms, many have been separately

identified and are already in the program.

The program for pregnant employees is focused towards providing proper health supervision and safeguarding pregnant personnel in their job by insuring a safe and healthful work environment. In conjunction with the work environment assessment, an assessment of the individual's physical limitations to function within her job description should be made by competent medical authority.<sup>4</sup> Currently, the Department of Obstetrics and Gynecology provides these services to the pregnant military member and all pregnant military personnel are enrolled in the program from the time they are first identified as being pregnant. At present, no concurrent referral is made to the occupational health nurse and no specific record is maintained on the pregnant soldier by that nurse.

The prevention and control of alcoholism is currently a dynamic program at Fort Gordon with concurrent medical center and installation emphasis. In respect to the occupational health program, this sub-program or measure is identifying and managing the problem in an adequate manner. The efforts of the recently assigned Alcohol and Drug Abuse Coordinator should further expand the program to maximum effectiveness. Thus the military member is adequately integrated into this program both conceptually and physically.

Health education and health counselling programs are currently implemented by the Preventive Medicine Activity through the occupational health nurses and other personnel of the activity. Recognized needs for additional classes and subjects are constantly identified and plans

coordinated for implementation. Concurrently, health counselling and education are accomplished on a one-to-one basis when the individual reports on sick call with an occupationally related illness or injury such as blisters or sunburn. Additional educational programs are provided through the environmental control program.

The identification of statistical data and analysis of the data are being conducted by the Preventive Medicine Activity. Currently, this program and related epidemiological evaluations are considered to be of a surveillance nature and are focused on specific diseases which have been identified as posing the maximum non-effectiveness of the soldier. The list of diseases and injuries monitored closely include measles, acute respiratory disease (ARD), venereal disease, heat and cold injuries, meningitis and specific identified cases of adenovirus. Other diseases or injuries are monitored less intensively unless there are indications that an unusual number of incidents are being reported. Emphasis and trend analysis are then applied to these specific items.

The program to monitor the sanitation in occupational areas, food service and preparation areas, toilet facilities and washrooms is well developed and equally applicable to all such areas on the installation. As a result, no additional emphasis is required to integrate the military soldier, since the program already covers them.

Army Regulation 40-5 specifies that preventive measures will include medical aspects of disaster planning. In this regard, the Chief of Plans, Operations and Training has prepared the overall emergency preparedness plan for the medical center. In preparing the

plan, the Preventive Medicine Activity has provided input and has the opportunity to provide recommended changes to the plan at any time that a change is indicated. During the semi-annual test of the plan, numerous areas were identified which require changes with respect to the Preventive Medicine Activity. Coordination is further accomplished with the installation staff to insure that medical disaster planning is not conducted in a vacuum and that all possible problem areas are identified and solutions found. Furthermore, close coordination and liaison are maintained with the Savannah River Plant in support of their disaster plans since this medical center will provide treatment of any employees injured during a nuclear incident. Therefore, by the scope of the program, the military member is totally integrated at the present time.

The environmental quality program is another element of the occupational health program which has a broad scope and which provides preventive measures, tests and controls to protect the civilian employee, military member and other personnel who visit or live on Fort Gordon. This program involves the monitoring of general water quality on the installation, sanitary control and operation of swimming pools, liquid waste disposal control, refuse disposal and control, and control of toxic chemical waste disposal. The prevention of cold injuries, heat injuries and solar radiation injuries can also be considered in the environmental quality program, although these specifically refer to environmental physiology and control of the conditions is beyond the capability of current technology.

Currently, there is a dynamic program instituted by the Preventive Medicine Activity to monitor and control all the aspects of the environmental quality program, to include surveys of water pH and chlorine content throughout the installation, monitoring of liquid waste disposal at the sewage treatment plant, inspection of the sanitary land fill and inspection of the post swimming pools. Since this has been an ongoing program for some time, the military member has been included within the scope of this program.

In the area of environmental physiology, the Preventive Medicine Activity has established a telephone recording service (dial HOTT) which identifies the current heat category and provides a brief description of the types of training which may be conducted and what limitations are imposed (if any) on training. During the summer months this recording is updated on the hour or half hour depending on current weather conditions. Concurrently with this service, the Preventive Medicine Activity teaches classes to the basic trainees, advanced individual training personnel and permanent party personnel on prevention and treatment of heat and solar radiation injuries. During the winter months, the same categories of personnel are taught classes in prevention and treatment of cold injuries. Throughout the year, all cases of suspected or confirmed heat or cold injuries are reviewed and the patients interviewed to ascertain the reason for the injury. In those cases where there is apparent lack of adequate training in prevention or treatment, additional classes are programmed for cadre and trainees.

The last program or preventive measure of the overall occupational health program involves both the provision of medical services and identification of hazards requiring other than routine maintenance physical examinations. In essence, this program incorporates selected elements of the other measures discussed above and is the program which has the least level of compliance of all the preventive measures identified by Army Regulation 40-5.

The military member, by virtue of his or her being on active duty, is eligible for both emergency medical care and routine medical care. Therefore, regardless of occupational implications, appropriate care is available, to include a wide variety of physical examinations. To date, the routine physical has been used as the vehicle to determine general fitness for continued active duty. Specific fitness examinations are accomplished on a case by case basis when the requirement for such has been identified as a result of a routine examination, as a result of a hospitalization for a specific condition or as the result of the individual reporting for treatment of a particular illness or injury. There is no current provision of physical examinations prior to a change in MOS/SSI classification unless the individual is currently under a physical profile and the new job could provide complications.

Within the occupational health program, three general classes of examinations are defined: preplacement job examinations, periodic job-related examinations, and other examinations, to include fitness, transfer and disability retirement. The military services

provide for a portion of these examinations under current philosophy, but do not specifically provide for all.

The general preplacement physical is conducted at the Armed Forces Entrance and Examination Station (AFEES) and basically determines if the individual is capable of performing general military tasks. The standards for induction are clearly defined and this screening physical has proved to be somewhat successful. There is some indication that a significant number of personnel are passing the AFEES examinations while, in fact, they are not fit for induction nor retention on active duty.

The average soldier who is recruited from the civilian community cannot be guaranteed placement in a specific MOS. Granted that the individual may have signed a contract that guaranteed him or her training in a specific career or MOS, the fact remains that, after basic training or after evaluation by medical personnel, the individual may not be mentally, psychologically or medically fit for the desired MOS. In that case, the individual may elect to leave the Army or to accept training in a different MOS. Furthermore, some individuals may have been selected for a specific advanced individual training course quite different from what they might have expected. The latter would include those individuals who had not been guaranteed a specific MOS upon enlistment. In both these cases, the AFEES pre-induction physical does not constitute, necessarily, a valid preplacement physical for a specific MOS.

An example of one such case might be the basic trainee who is

selected for further training as a tactical satellite/microwave systems operator (MOS 26Q). By MOS, this individual should be provided a pre-placement (and termination) ophthalmological examination to determine a base line for future assessment of microwave radiation damage. Since he was not identified prior to advanced individual training (AIT) as requiring this specifically, the AFEES physical examination would be inadequate for purposes of an occupational health program. Conversely, it would not be cost effective to accomplish a base line examination on all recruits to cover all the possible requirements of all MOS's, since few of these personnel would, in fact, require such specialized examinations. The requirement, then, rests with the servicing medical treatment facility and the installation to jointly identify individuals requiring such preplacement physicals or special examinations and insure that they are conducted. This is not currently being accomplished at Fort Gordon.

The second classification of examinations required by the regulation (AR 40-5) is that of periodic job-related physical examinations. Currently, military personnel receive an annual or biennial physical examination, depending on age, which is basically a maintenance examination. Although a chest x-ray, urinalysis, routine blood work and a hearing test are administered and the visual acuity via an eye chart is documented, the examination does not specifically focus on the individual's job or MOS. Additional tests which could be routinely accomplished based on exposure to various agents or conditions are not accomplished. Thus this examination provides a general view of the

overall health of the individual, but does nothing to identify the effects of agents he works with or the effects of the conditions he works under as they relate to long term or short term disability from those conditions or agents. Thus the requirement for a periodic job-related examination is not being met at the present time.

The third classification of examinations are those pertaining to disability retirement and fitness for duty. In these cases, once a medical condition is identified by routine physical, hospitalization or reporting to sick call, specific fitness or disability physicals are accomplished and appropriate administrative action taken to medically board the individual or return him or her to duty with or without specific limitations on their activities. In this respect, then, the military member is adequately covered with a program that effectively deals with the requirement.

Although not listed as a specific type of medical evaluation or examination, the sickness absence control program has the purpose of evaluation of employee health status after illness and recommending limitations on work to be performed. Every time an individual soldier reports on sick call, this is, in essence done. The philosophy at Fort Gordon is to give the soldier no more than twenty-four hours of quarters at one time and requires that the soldier return to the clinic which granted that quarters disposition the next day for further evaluation. In fact, if the individual is feeling better or sufficient negative inducement is supplied by the supervisor, the individual will not return for the follow-up. It is then assumed that the soldier

would have presented himself if he were not better, and the whole incident is forgotten. This laxity in the program basically circumvents the purpose of the program and adds the possibility of setting the individual up to either further injure himself or develop an illness which will require much longer to cure. In the long run, the maximization of the personnel resources from a logical viewpoint would require that the least cost in time and money be the guideline for the supervisor. This will invariably be to prevent the illness or injury or treat it at an early stage when the costs in lost time and in dollars for medicine, therapy and rehabilitation are at a minimum. Thus, the sickness absence control program should be closely monitored and controls instituted to preclude not returning just because the individual sees no reason to return.

Regardless of the type of examination that is required or accomplished, the occupational aspects of the individual should be considered. In order to do this, health hazard surveys to determine the physical hazards, such as noise, flying particles, heat and cold, chemical hazards, such as waste anesthetic gases, and biological hazards such as tuberculosis, should be conducted in all buildings and training areas on the installation. These surveys should be building and room specific and should provide a comprehensive list of the hazards that the individual is exposed to. As a cross reference, the individual soldier should be identified by his or her MOS/SSI and the normal hazards associated with that MOS/SSI. This would then provide a check on the system, in the sense that a review by a specific hazard, a

specific area, building (and room number) or MOS/SSI should all identify that individual by name as being exposed to the hazard in question. Presently, there is no comprehensive list of hazards available to match the requirement. Specific hazard surveys are being conducted on the installation in the 1300 buildings and the training areas. There is no current list that provides an MOS/SSI listing of hazards these individuals would be most likely exposed to by virtue of their jobs, although a general list of MOS/SSI specific hazards has been developed for the Army as a whole.<sup>5</sup> It should be recognized that the Army list is one of potential hazard exposure only and takes on meaning only when it is used in conjunction with a specific hazard inventory as outlined above.

For purposes of this study, a list of Fort Gordon specific MOS/SSI was obtained from the Military Personnel Office (MILPO) and a cross reference by MOS/SSI, hazards and specific tests required to monitor those hazards at specified intervals was developed (Appendix A and B). These specific documents should provide a point of departure for future integration of the ongoing health hazard survey with the individuals who require specific testing not covered in current physical examination policy and scope.

#### Summary of the Requirements

At this point it would be useful to summarize the requirements that have been identified as lacking in the military occupational health program at Fort Gordon. Specifically, the military program, to be completely functional at Fort Gordon, must include continued emphasis

on the expansion of the hearing conservation program, the inclusion of the occupational vision program into the overall program, and the establishment of a preplacement, job-related and sickness absence examination system. The last measure, medical examinations, must be done in conjunction with the completion of specific health hazard surveys of all buildings and training areas on post and an establishment of a filing mechanism which will provide data on each individual as regards occupational exposure to specific hazards.

The program will not be functional unless the data that is then available is also preserved in an occupational health record which will follow the individual throughout his or her career in the military. There is currently no separate file of occupational health and safety data on the individual, other than what can be gleaned from the health record. In addition, to be fully viable, the program must be under the technical management of a single manager to insure that all facets of the program are functioning in a satisfactory manner.

#### Analysis of Resource Requirements

As was indicated above, data obtained from the installation MILPO was utilized to develop the MOS and SSI related requirements for occupational health testing required to support the programs. Specific tests identified in Appendixes A and B and related to the specific MOS/SSI were extracted from the USAEHA Guide 001.

The total number of personnel in each MOS/SSI was developed from both permanent party personnel data in MILPO and the number of personnel programmed for basic training and AIT or OSUT training in

FY 81. From this data, a list of specific procedures and laboratory tests required on a yearly basis was developed. A survey of the various departments and activities involved was conducted and costs associated with each test and procedure determined. These unit costs are reflected in tables 2 and 3 in Appendix C and do not reflect costs associated with military or civilian pay. Total costs for supplies to implement the program is estimated to be \$4,759.64, of which \$2,485.64 would be allocated against the medical center budget. The remaining \$2,274.00 would be paid by the installation and reflects the costs for implementation of a comprehensive personal monitoring device (film badge) program by the installation Radiation Protection Officer (RPO). Currently only 49 personnel are involved in the installation's program.

With an operating budget of \$25 million, the impact on the budget of the medical center is minimal (less than 0.01%) and the increase in work load should provide the justification for additional funds to cover this aspect. A concurrent review of immunization and reimmunization requirements for military personnel (table 4, Appendix C) indicates that the normal requirements already prescribed by Army Regulation 40-562 will fully cover the military member at Fort Gordon. Therefore, no additional work load in terms of money or personnel would be required.

The most severe impact on the medical center in the provision of the full gamut of occupational health related procedures and tests is in the area of personnel. Table 5 in Appendix C provides an

estimation of the increased personnel resources required to provide the appropriate tests and procedures. It is recognized that the impact in certain departments can be considered, for all intents and purposes, as minimal and capable of being integrated within the normal yearly work load. Specifically, the minimal impact would be in the Department of Medicine, the Department of Radiology, the Department of Primary Care and the Immunization Clinic.

On the surface, the Department of Pathology should be able to accomplish an additional average of 220 lab tests per month. Currently, the laboratory is experiencing a personnel shortage and the impact of another 220 lab tests would require the expenditure of overtime funds. If the long range view, by the time of this implementation of a complete program, the resources (personnel) should be available to handle this work load.

A similar situation exists in the Department of Surgery in that both the ophthalmology staff and optometry staff are working to capacity and appointments/consults in these areas are backlogged over six weeks. Increased work load equivalent to .4 manyears could prove difficult without increase in staff. Options available in this area are to have either an ophthalmologist perform the examinations required or an optometrist perform the exam with referral to ophthalmology of unusual/abnormal findings. This would provide the flexibility of increasing staff in either specialty and provide the necessary examinations to support the occupational health program.

The largest single impact in personnel requirements would be

found in the Preventive Medicine Activity. A conservative estimate of the manpower requirements for administration of records and reports is two personnel. This estimate does not include additional work load on the occupational health nurse nor the requirements for scheduling consultations, examinations and follow-up work. The time required for this is variable and depends, to a great extent, on the amount of support provided through the effective utilization of planned computer resources. With a totally manual system, it is estimated that at least one additional clerk would be required in support of the program. Estimates of total personnel available were based on all active duty personnel permanently assigned plus the programmed FY 81 training load. This data is presented in table 6,

Appendix C.

The requirement for additional occupational health nurses is difficult to define, since the nurse is responsible for maintaining records and scheduling appointments/consults.<sup>6</sup> Extrapolation from the operation of the Patient Administration Division (PAD) would indicate that these duties can be handled by medical records clerks and that professional personnel are best utilized in professional pursuits. The staffing guide provides for one occupational health nurse for each 1,300 civilians supported.<sup>7</sup> Since many of the functions required of the occupational health nurse are presently provided for by other professional personnel (i.e., health counselling and health education), and the medical record function could best be handled by a medical records clerk, a full ratio of one occupational health nurse per 1,300

military members would seem extreme. Furthermore, the majority of work in the occupational nursing area would be associated with permanent party personnel and those AIT or OSUT personnel in career fields identified with some hazard. A more reasonable approach would be to provide one occupational health nurse on the basis of 5,000 military personnel identified as potentially exposed to occupational hazards. Table 7, Appendix C provides the data for this group of personnel at Fort Gordon and application of the modified yardstick would require the addition of two occupational health nurses for the program.

Thus the overall increase in personnel in the Preventive Medicine Activity to support the program would be two occupational health nurses and two medical records clerks (three if a totally manual system is used).

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#### Footnotes

<sup>1</sup>United States Army Signal Center and Fort Gordon Regulation 40-7, Medical Services: Occupational Health Program (12 February 1980), pp. 1-2.

<sup>2</sup>United States Army Regulation 40-5, Medical Services: Health and Environment, (25 September 1974), pp. 4-5, 4-6.

<sup>3</sup>Ibid., p. 4-5.

<sup>4</sup>United States Army Signal Center and Fort Gordon Regulation 40-7, pp. B1-B3.

<sup>5</sup>United States Army Environmental Hygiene Agency Technical Guide 001, Medical Surveillance Guide, Appendix H: Recommendations for Periodic Job-related Examinations for Military Occupational Specialties and Specialty Skill Identifiers, (October 1978).

<sup>6</sup>United States Army Signal Center and Fort Gordon  
Regulation 40-7, pp. 3-4.

<sup>7</sup>United States Army Pamphlet 570-557, Staffing Guide for US  
Army Medical Department Activities (28 January 1974), p. 2-112.

## CHAPTER III

### RECOMMENDATIONS

At this point, a review of historical and regulatory requirements provides a clear mandate to implement a full scale occupational health program for the military members of the Army. As discussed in Chapter II, the program basically exists on paper and those measures or sub-programs that are operational either represent individual actions by separate activities or provide coverage through the scope of the program for civilian employees. The indications from a cursory view are that the program would require a massive effort to implement. Specific analysis of actual requirements taken in conjunction with presently offered services show a somewhat brighter picture and a more manageable group of requirements.

With the present resources available, a full program cannot be implemented in other than a phased approach which recognizes certain priorities to certain groups. To start the expansion of present services into the comprehensive program, a number of concurrent actions must be undertaken by the medical center, or more specifically, the Preventive Medicine Activity.

The first priority must be to develop an interim schedule X to identify the manpower requirements necessary to provide for records maintenance, initiating of consultation forms, preplacement physicals,

health education, health counselling and continuation of ongoing health hazard inventories. Since the Program Budget Advisory Council will be reviewing the total medical center requirements and authorizations in the near future, special emphasis should be given to justification of sufficient allocations to meet the program needs and, as an exception to normal operations, the provision of these allocations against the interim scheule X requirements submitted to Health Services Command. The results of these two actions will, for the most part, define the scope of the program and the degree to which the military member will be integrated. The success in receiving allocations will certainly rest within the priorities for mission accomplishment as established by the medical center commander.

With the approaching delivery of the medical center's computer in October 1980, the requirements for the occupational health program's utilization of this resource must be defined and provided to the Automation Guidance Council for developmental priority. The development of computer support programs should be greatly aided by adoption or modification of various programs currently in use by other medical centers: William Beaumont's Occupational Safety and Health Act System, and Fitzsimons' Occupational Health and TB Control, and Hearing Conservation Program. The Management Information Systems Officer (MISO) currently has copies of these programs and modification could commence upon approval of the Automation Guidance Council and the hiring of programmers to support the MISO. As an added resource, the medical center's audiologist originally developed the

Hearing Conservation Program and could provide invaluable support for required local modification.

The basic computer program to assist the effective functioning of the occupational health program should provide for the following services: current hazard inventory data with a cross reference capability to provide lists of hazards by room and building, personnel (by name and organization) potentially exposed to a specific hazard by job classification (MOS/SSI) or job location, and lists by hazard that the individual (by name) is potentially exposed to. The system should be capable of providing lists by name and organization of those personnel requiring occupational testing and the specific test(s) required. Ideally, there would be the ability to concurrently schedule the individual for the tests or examinations. This program should interface with the provision of routine health maintenance examinations to add the occupational testing required to be reviewed during that exam and should also insure that individuals have received current immunizations as required by Army Regulation 40-562.

The majority of the information required to build such a data base is currently available in the USAEHA guide and the data base maintained by SIDPERS. Integration of the systems currently utilized with the overall occupational health program to be developed should be maximized to avoid unnecessary duplication. Furthermore, specific data on the third character of the officer SSI will have to be added to data currently utilized by SIDPERS. At present, only the first two digits for non-AMEDD personnel are utilized and, for hazard assessment

by SSI, the third digit is significant.

Considering that the population at Fort Gordon includes the rotation of approximately 35,000 trainees and 2,000 permanent party per year, purge criteria must be established and cross checks between the data base for the occupational health program and other data bases with personnel information is mandatory. Data from finance, MILPO and the two computer data bases currently at the medical center (the Data Stat Pharmacy/PAD system and the Family Practice System) can be used for this purpose. This will also help to identify personnel who are assigned and have not been entered into the program, thus serving a dual purpose.

As an additional feature, programs can also be developed to provide statistics for both reporting purposes and for identification of occupational illness and injury trends. Other programs deemed necessary could be developed at a later date as defined by local requirements.

These recommendations only provide the preliminaries to start the system and provide support at some future date. Discussions with the MISO indicated that it could take a year or longer to develop adequate programs to support the effort, depending on the priorities assigned by the commander through the Automation Guidance Council.

Once this groundwork has been laid, the health hazard surveys should continue to cover the remaining training areas and buildings not already surveyed. This portion of the program could require one year to complete the remaining surveys and corresponds to the projected

availability of full computer support of the program.

As these preliminaries are being completed, a partial program, by priority, should be initiated. This program would involve the establishment of occupational medical records for individuals identified solely by MOS/SSI as potentially exposed to hazards and would include those personnel in AIT/OSUT training who require preplacement ophthalmological exams. Table 7, Appendix C indicates that some 9,075 personnel fall into this category and this, in and of itself, is a large number to start with. A judicious look at the personnel who comprise this group indicates that a certain number of personnel were identified by a MOS/SSI in which they are not currently functioning as was anticipated when the USAEHA guide was developed. As an example, Infantry Officers (11 Series SSI), Artillery Officers (13 Series SSI) and Armor Officers (12 Series SSI) require yearly audiograms due to potential exposure to noise. This is predicated on the fact that they are around artillery fire or are riding in armored personnel carriers or tanks. The fact that they are working as instructors or in administrative positions and not in field units could ameliorate the need for these tests. Applying that logic, the number of personnel initially requiring immediate entrance into the program drops from 9,075 to 3,681 (2,832 permanent party and 849 AIT/OSUT personnel).

Therefore, in a recommended implementation by phases, the first priority would be those personnel actually exposed to hazards or requiring preplacement examinations. This would strain current resources but is a manageable number. In addition, a review on a

case by case basis could decrease the number even further.

As resources (manpower and the other supporting activities discussed above) become available, the program can be expanded to include the remainder of the personnel identified by table 7, Appendix C. Specific inclusion by category would be used to avoid an overload situation while slowly integrating those personnel.

As continued manpower resources become available, the remainder of the personnel eligible for the program can be included. By this stage all hazard inventories should be completed and cross references available to identify the remaining eligibles.

The overall implementation outlined above cannot be accomplished in a vacuum by the executive agent. Each and every step of the phased approval must be fully coordinated with all activities upon which an impact will be felt. This will include both the medical center departments and the various units and activities at the Signal Center. Their cooperation and support will be required to keep the program functioning and to identify and report hazards identified between surveys and those personnel potentially exposed to those hazards - whether permanent party, trainee or AIT/OSUT personnel.

In general, maximum acceptance should be expected by the medical center staff in implementing the program in that the majority of tests, other than audiograms and eye evaluations, are focused towards assessment or prevention of injury and illness to that staff. Of the officers listed in table 7, Appendix C, 435 are non-AMEDD personnel requiring audiograms only and the remainder, 462, are AMEDD

officers requiring procedures ranging from semiannual TB tests to the full gamut of laboratory tests. The installation personnel should also show positive support for the program since they have shown significant interest in identifying hazards from microwave radiation and are vitally interested in providing the most realistic yet safe training for all personnel at the Signal Center.

The phased approach discussed above will not provide for immediate compliance nor will it be able to be totally implemented in a short period of time. It will provide for a continuing program for providing necessary occupational safety and health programs to the military and can, with allocation of sufficient resources, both integrate all military members at Fort Gordon into a viable program and provide for documentation of career exposure to potential hazards for that time they are assigned to Fort Gordon.

**APPENDIX A**

**TABULATION OF ENLISTED MOS AT FORT GORDON  
WITH RELATED OCCUPATIONAL HEALTH TESTS  
REQUIRED**

**APPENDIX A**

**TABULATION OF ENLISTED MOS AT FORT GORDON WITH RELATED OCCUPATIONAL HEALTH TESTS REQUIRED**

MOS	HAZARD	TEST REQUIRED	FREQUENCY	TOTAL PERSONNEL
00E, J, Z, U	None	None	N/A	36,793 <sup>1</sup>
03C				
05B				
09B				
26T, Y				
27E				
31E, M, N, S, T, V, Z				
32D, F, G, H, Z				
35E, L, M, P, R				
36C, D, H, K, L				
41E				
64C, Z				
71D, G, L, M, N, P, Q, R				
72E, G				
73C, D, Z				
74F, Z				
75B, C, D, E, Z				
76D, J, P, X, Y, Z				
79D				
81B, E				
82C				
84C, F, T, Z				
91Q				
96B				

MOS	HAZARD	TEST REQUIRED	FREQUENCY	TOTAL PERSONNEL
02B,C,D,E,F,G,H,J, K,L,M,N,Q,R,T,Z	Noise	Audiogram	Annual	1,352
05C,D,H				
11B,C,H				
12B				
13B,F				
15D,E				
16,B,D,P				
17C				
19D,E,F				
24U				
26V				
31J				
34B,C,E,F,H,J,K,Z				
35K				
43M				
45R				
51R,Z				
52C,D,E				
62E,F,J,N				
63B,C,F,H				
67G,N,V,Y				
68D				
74B,D				
76V				
95B,C,D				
98J				
17K				
26B,C,D,L,Q,R	Microwave	Ophthalmoscopic Exam Slit lamp exam of lens, determination of best visual acuity eye evaluation	Preplacement and Termination Annual	166

MOS	HAZARD	TEST REQUIRED	FREQUENCY	TOTAL PERSONNEL
51N	Welding; UV, IR, IV metal and flux fumes	eye evaluation pulmonary functions chest x-ray	Annual Biennial; annual if exposure exceeds 10 years	12
	asbestos	urinalysis pulmonary functions chest x-ray	Annual Annual	2
	lead	sputum cytology blood lead	Annual Semi-annual	
	diatomaceous earth	CBC, UA	Annual	
	/ noise	pulmonary functions TB Testing chest x-ray	Annual Biennial; annual if exposure exceeds 10 years	
	/ noise	audiogram	Annual	
51P	noise asbestos	audiogram chest x-ray pulmonary functions	Annual Annual Annual	2
	lead	sputum cytology blood lead	Semi-annual Annual	
	CBC, UA	CBC, UA	Annual	
55B	noise TNT, nitroglycerin	audiogram SGOT, LDH, lIgb, lICt EKG stress test	Annual Quarterly Semi-annual Semi-annual - only if EKG or history consistent with ischemic heart disease	9
	tetryl	pulmonary functions dermatological exam	Annual Annual	

MOS	HAZARD	TEST REQUIRED	FREQUENCY	TOTAL PERSONNEL
21G 24H	Noise Microwave	Audiogram Ophthalmoscopic exam Slit lamp exam of lens, determination of best visual acuity eye evaluation	Annual Preplacement and Termination Annual	2
35B,F 91W	X,Y radiation $\alpha,\beta$ radiation	personal monitoring device bioassay	Monthly As appropriate	166
35G,S,T	X,Y radiation	personal monitoring device	Monthly	10
	UV, IR	eye evaluation	Annual	
42C	Noise Brazing IV,UV,IR metal and flux fumes	Audiogram eye evaluation chest x-ray	Annual Annual Biennial; annual if exposure exceeds 10 years	2
		Pulmonary Functions Urinalysis	Annual Annual	
42D	TB Acrylic resins Noise	IAW AR 40-26 Dermatological exam Audiogram	Annual Annual	62
44E 51B	Noise Cutting oils, epoxy resins	Audiogram Dermatological exam	Annual Annual	44
91B,C,F,G,U,V,Y	TB	IAW AR 40-26		325
91H,L	Noise TB	Audiogram IAW AR 40-26	Annual	11

MOS	HAZARD	TEST REQUIRED	FREQUENCY	TOTAL PERSONNEL
91J,P,T	TB X radiation	IAW AR 40-26 Personal monitoring device	Monthly	28
44B	Noise UV, IR, IV metal and flux fumes, dust, cadmium	Audiogram eye evaluation pulmonary functions chest x-ray	Annual Annual Annual Biennial; annual if exposure exceeds 10 years	7
	lead	Urinalysis blood lead, CBC	Annual	
	organic solvents	SGOT, SGPT, ALK PO4, CBC	Annual	
	isocyanates	total eosinophil count	Annual	
51C	Noise welding, UV, IV, IR metal and flux fumes	Audiogram eye evaluation pulmonary functions chest x-ray	Annual Annual Annual Biennial; annual if exposure exceeds 10 years	19
	asbestos	Urinalysis pulmonary functions chest x-ray	Annual	
	lead	sputum cytology blood lead CBC, UA	Annual Semi-annual Annual	
51H	Noise asbestos	Audiogram chest x-ray sputum cytology pulmonary functions blood lead	Annual Annual Annual Annual Semi-annual	9
	lead	CBC, UA	Annual	
	X,Y radiation, neutrons	personal monitoring device	Monthly	

MOS	HAZARD	TEST REQUIRED	FREQUENCY	TOTAL PERSONNEL
61B	Noise Organic Solvents lead isocyanates	Audiogram SGOT, SGPT, ALK PO4 CBC blood lead CBC, UA Pulmonary functions Total eosinophil count	Annual Annual Annual Semi-annual Annual Annual Annual	21
62H	Noise coal tar pitch volatiles	Audiogram chest x-ray sputum cytology Pulmonary functions Urinalysis Dermatological exam	Annual Biennial; annual if exposure exceeds 10 years Annual Annual Annual Annual	2
76W	Petroleum products Tetraethyl lead Benzene Noise	Dermatological exam CBC, UA urine lead CBC, platelet count Bilirubin, reticulo- cyte count Audiogram	Annual Annual Semi-annual Semi-annual and preplacement Preplacement Annual	6
83F	Miscellaneous photographic chemicals Noise lead	SGOT, SGPT, ALK PO4, LDH, UA, creatinine, CBC Audiogram Blood lead CBC, UA	Annual Annual Semi-annual Annual	10

MOS	HAZARD	TEST REQUIRED	FREQUENCY	TOTAL PERSONNEL
84B	Miscellaneous photographic chemicals	SGOT, SGPT, ALK PO <sub>4</sub> , LDH, UA, creatinine, CBC	Annual	16
91D	Waste anesthetic gases	CBC, SGOT, SGPT, ALK PO <sub>4</sub> , LDH, UA, creatinine	Annual	24
	TB	IAW AR 40-26		
91E	Mercury X radiation	Urine mercury Personal monitoring device	Annual Monthly	32
	Waste anesthetic gases Noise	CBC, SGOT, SGPT, ALK PO <sub>4</sub> , LDH, UA, creatinine Audiogram	Annual Annual	
	TB	IAW AR 40-26		
91N	Mercury X radiation	Urine mercury Personal monitoring device	Annual Monthly	4
	TB	IAW AR 40-26		
91R,S		AR		26
92B,D	Miscellaneous chemicals	SGOT, SGPT, ALK PO <sub>4</sub> , LDH, CBC, UA, creatinine	Annual	31
	AR			
94B,F	Potential hazard to others	IAW AR 40-5		235

**ABBREVIATIONS**

ALK PO <sub>4</sub>	Alkaline phosphatase
AR	as required
CBC	Complete blood count
EKG	Electrocardiogram
HCT	Hematocrit
Hgb	Hemoglobin
IR	Infrared
IV	Intense visible
LDH <sup>1</sup>	Lactic Dehydrogenase
SGOT	Serum glutamic oxalacetic transaminase
SGPT	Serum glutamic pyruvic transaminase
TB	Tuberculosis
TNT	Trinitrotoluene
UA	Urinalysis including microscopic
UV	Ultraviolet

<sup>1</sup>This number represents 4,167 permanent party individuals and 32,626 trainees who would not, by MOS, require any testing while at Fort Gordon.

**APPENDIX B**

**TABULATION OF OFFICER SSI AT FORT GORDON  
WITH RELATED OCCUPATIONAL HEALTH TESTS  
REQUIRED**

**APPENDIX B**

**TABULATION OF OFFICER SSI AT FORT GORDON WITH RELATED  
OCCUPATIONAL HEALTH TESTS REQUIRED**

SSI	HAZARD	TEST REQUIRED	FREQUENCY	TOTAL PERSONNEL
00	None	None	N/A	2,259
25A (trainee)				
27				
28				
35				
36				
41				
42A, B				
43				
44				
53				
55				
56A, C				
67A, C, D, E, F, H, K				
68H, R, S, T				
72				
74				
75				
92				
95				

SSI	HAZARD	TEST REQUIRED	FREQUENCY	TOTAL PERSONNEL
60A,C,E,F,G,L, M,P,R,U,V,W	TB	IAW AR 40-26		305
61A,B,C,D,F,G,H				
63P				
65B				
66A,B,C,D,H				
67B				
68K				
011A				
60B	TB	IAW AR 40-26		4
68B	various radio-nuclides	bioassays	As appropriate	
	X radiation	personal monitoring device	Monthly	
64H,Q	TB	IAW AR 40-26		10
64A	X radiation	personal monitoring device	Monthly	
65A	TB	IAW AR 40-26		10
68M	noise	audiogram	Annual	
202A	X, Y radiation	personal monitoring device	Monthly	1

SSI	HAZARD	TEST REQUIRED	FREQUENCY	TOTAL PERSONNEL
60J,K,S 61J,K,L,Z	TB waste anesthetic gases	IAW AR 40-26 CBC, SGOT, SGPT, ALK PO <sub>4</sub> , LDH, UA, creatinine	Annual	19
60N 66E,F,G	TB waste anesthetic gases	IAW AR 40-26 CBC, SGOT, SGPT, ALK PO <sub>4</sub> , LDH, UA, creatinine	Annual	25
	X radiation	personal monitoring device	Monthly	
61M 63K,N,R 68L	TB noise X radiation	IAW AR 40-26 audiogram personal monitoring device	Annual Monthly	15
	waste anesthetic gases	CBC, SGOT, SGPT, ALK PO <sub>4</sub> , LDH, UA, creatinine	Annual	
61Q,R,S	TB X, radiation	IAW AR 40-26 personal monitoring device	Monthly	7
61T	TB formalin	IAW AR 40-26 dermatological exam pulmonary functions	Annual Annual	1

SSI	HAZARD	TEST REQUIRED	FREQUENCY	TOTAL PERSONNEL
61U	TB formalin miscellaneous chemicals	IAN AR 40-26 dermatological exam pulmonary functions SGOT, SGPT, ALK PO <sub>4</sub> , LDH, CBC, UA, creatinine AR	Annual Annual Annual	5
63A,B,D,E,F,G	TB mercury X radiation waste anesthetic gases noise	IAN AR 40-26 urine mercury personal monitoring device CBC, SGOT, SGPT, ALK PO <sub>4</sub> , LDH, UA, creatinine audiogram	Annual Monthly Annual	39
64B	miscellaneous chemicals	CBC, SGOT, SGPT, ALK PO <sub>4</sub> , LDH, UA, creatinine	Annual	1
65C	potential hazard to others	IAN AR 40-5	6	
68A	TB	IAN AR 40-26 AR	3	
68F,L	miscellaneous chemicals	IAN AR 40-26 SGOT, SGPT, CBC, ALK PO <sub>4</sub> , LDH, UA, creatinine AR	3	

SSI	HAZARD	TEST REQUIRED	FREQUENCY	TOTAL PERSONNEL	
				audiogram	Annual
11	noise				
12					
13					
14					
21					
25A					
31					
37					
42C					

## ABBREVIATIONS

ALK PO <sub>4</sub>	Alkaline phosphatase
AS	As required
CBC	Complete blood count
LDH	Lactic dehydrogenase
SGOT	Serum glutamic oxaloacetic transaminase
SGPT	Serum glutamic pyruvic transaminase
TB	Tuberculosis
UA	Urinalysis, to include microscopic

**APPENDIX C**

**TABLES**

TABLE 2

**COSTS ASSOCIATED WITH PROCEDURES REQUIRED BY  
MILITARY OCCUPATIONAL HEALTH PROGRAM  
AT FORT GORDON**

PROCEDURE	PROCEDURES PER YEAR	COST PER PROCEDURE	TOTAL COST PER YEAR
Stress test with EKG	9	\$0.47	\$ 4.23
Dermatological exam	133	0.00	0.00
EKG	18	0.47	8.46
Preplacement/termination ophthalmological exam	818	0.00	0.00
Eye evaluation	220	0.00	0.00
Audiogram	2,110	0.20	422.00
Chest X-ray	66	2.50	165.00
Personal monitoring devices	2,274	1.00	2,274.00
TB test	1,874	0.29	543.46
Pulmonary functions	93	0.23	21.39
Food handler's exam	241	2.00	482.00
<b>Grand total</b>	<b>7,856</b>		<b>\$3,920.54</b>

NOTE: Costs reflect unit costs of materials and do not reflect costs associated with military or civilian pay.

TABLE 3

**COSTS ASSOCIATED WITH LABORATORY TESTS REQUIRED BY MILITARY  
OCCUPATIONAL HEALTH PROGRAM AT FORT GORDON**

TEST	TESTS PER YEAR	COST PER TEST	TOTAL COST PER YEAR
Urinalysis	306	\$ 0.30	\$ 91.80
Blood lead	160	1.50	240.00
CBC	318	0.50	159.00
SGOT	311	0.59	183.49
SCPT	275	0.51	140.25
Alkaline phosphatase	275	0.51	140.25
Total eosinophils	28	1.43	40.04
Sputum cytology	44	5.00	220.00
LDH	283	0.53	149.99
Hemoglobin	36	0.50	18.00
Hematocrit	36	0.70	25.20
Platelet count	6	1.56	9.36
Bilirubin	6	1.30	7.80
Reticulocyte count	6	1.05	6.30
Urine mercury	84	1.50	126.00
Creatinine	247	0.46	113.62
Bicassay	168	1.00	168.00
Grand total	2,586		\$ 1839.10

NOTE: The cost per test listed does not include the cost of technician time.

TABLE 4

**IMMUNIZATION AND REIMMUNIZATION REQUIREMENTS  
FOR MILITARY PERSONNEL IN THE CONTINENTAL  
UNITED STATES (CONUS)**

IMMUNIZING AGENTS	REIMMUNIZATION INTERVAL
Smallpox vaccine	3 years
Typhoid <sup>a</sup>	3 years
Tetanus and diphtheria toxoid	10 years
Poliovirus vaccine	none
Influenza vaccine	1 year
Meningococcal vaccine <sup>b</sup>	none
Adenovirus vaccine <sup>b</sup>	none
Yellow fever vaccine <sup>c</sup>	10 years
Cholera vaccine	as required
Plague vaccine <sup>c</sup>	6 months
Rubella <sup>d</sup>	none

SOURCE: United States Army Regulation 40-562, Immunization Requirements and Procedures, June 1977, p.15, table 2.

<sup>a</sup>No reimmunization of non-alert forces while in CONUS.

<sup>b</sup>Given to basic trainees and at the discretion of the Surgeon General.

<sup>c</sup>Alert forces only.

<sup>d</sup>Non-pregnant susceptible females of child bearing age.

**TABLE 5**  
**IMPACT ON PERSONNEL RESOURCES WITH IMPLEMENTATION OF THE MILITARY  
 OCCUPATIONAL HEALTH PROGRAM AT FORT GORDON**

DEPARTMENT	PROCEDURE	WORKLOAD INCREASE PER YEAR	INCREASED MAN- HOURS PER YEAR
Department of Medicine	stress test with EKG dermatological examination EKG	9 133 18	9 33 5
Department of Surgery	ophthalmological examination eye evaluation audiogram	818 220 2,110	409 110 580
Department of Radiology	chest X-ray	66	19
Fort Gordon HPG Immunization Clinic	personal monitoring device TB test	450 1,874	75 62
Preventive Medicine Activity	pulmonary functions laboratory slips consultation forms maintenance of records	93 4,704 3,401 42,252	5 157 113 3,480
Department of Pathology	laboratory tests	2,589	180
Department of Primary Care	physical examination copies	5,368	83

TABLE 6

**TOTAL MILITARY PERSONNEL ELIGIBLE FOR OCCUPATIONAL  
HEALTH PROGRAM AT FORT GORDON -- BY CATEGORY**

CATEGORY	OFFICER	ENLISTED	TOTAL
Permanent party	1,069	6,447	7,516
OSUT/AIT <sup>a</sup>	0	23,626	23,626
Basic trainees	2,110	9,000	11,110
Grand total	3,179	39,073	42,242

<sup>a</sup>One station unit training/advanced individual training

TABLE 7

**MILITARY PERSONNEL INITIALLY IDENTIFIED AS REQUIRING  
OCCUPATIONAL HEALTH TESTING BY MOS/SSI --  
BY CATEGORY**

CATEGORY	OFFICER	ENLISTED	TOTAL
Permanent party	879	2,280	3,159
OSUT/AIT <sup>a</sup>	0	5,916	5,916
Basic trainees	0	0	0
Grand total	879	8,196	9,075

<sup>a</sup>One station unit training/advanced individual training

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